

Why Save Endangered Species?



Cover: The peregrine falcon, a magnificent raptor that can dive for its prey at speeds up to 200 miles per hour, pointed out the dangers of DDT when the poison brought two subspecies to the brink of extinction.



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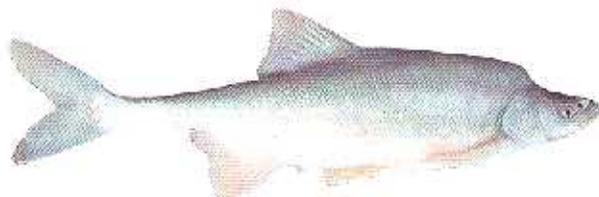
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Since life began on this planet, countless creatures have come and gone—rendered extinct by naturally changing physical and biological conditions.

If extinction is sometimes part of the natural order, and if many other species remain, some people ask: "Why save endangered species? What makes these animals and plants so special that money and effort should be spent to conserve them?"

Congress addressed these questions in the preamble to the Endangered Species Act of 1973, recognizing that endangered species of fish, wildlife, and plants "are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." In this statement, Congress was summarizing a number of convincing arguments advanced by scientists, conservationists, and others who are greatly concerned by the disappearance of unique creatures.

Unfortunately, we can no longer attribute the accelerating decline of our wild animals and plants to "natural" processes. Biologists know that today's danger to wildlife most often results from habitat



The Colorado River system once contained some of the most turbulent waters on earth, and fishes like the humpback chub evolved unique shapes to gain stability in the rough currents. Today, after construction of over 20 dams, only a few short stretches of this unique habitat remains, and this fish is endangered.

degradation, environmental pollution, the introduction of exotic (non-native) organisms, and exploitation—all generally as a direct result of human activities.

Although conservation efforts have begun in recent years, mankind is still exterminating entire species at an ever-increasing rate. Since the Pilgrims landed at Plymouth Rock in 1620, more than 500 species, subspecies, and varieties of our Nation's plants and animals have become extinct—lost forever. (By contrast, during the 3,000 years of the Pleistocene Ice Age, all of North America lost only about three species every 100 years.) The situation today is even worse in other parts of the world.

The Benefits of Natural Diversity

No creature exists in a vacuum. All living things are part of a complex, delicately balanced network called the biosphere. It is composed of ecosystems, the study of which includes the set of interrelationships between plants and animals and their physical environment. The removal of a single species can set off a chain reaction affecting many others. It has been estimated, for example, that a disappearing plant can take with it up to 30 other species, including insects, higher animals, and even other plants. The full significance of an



Freshwater mollusks like this endangered Higgin's Eye mussel feed by filtering particles out of the water. Toxic substances accumulate in the body tissues, making these animals valuable as natural monitors of water quality.

extinction is not always readily apparent; much remains to be learned, and the full long-term impacts are difficult to predict.

Medicine. Each living thing contains a unique reservoir of genetic material that has evolved over eons of time, and cannot be retrieved or duplicated if lost. Scientists have partially investigated so far only a small fraction of the world's species and have begun to unravel a few of their chemical secrets to determine possible benefits to mankind. No matter how small or obscure a species, it could one day be of direct aid to all of us. It was "only" a fungus that gave us penicillin, and certain plants have yielded substances used in drugs to treat heart disease, cancer, and a variety of other serious illnesses. At least a quarter of all prescriptions written annually in the United States contain chemicals discovered in plants and animals. If these organisms had been destroyed before their chemistries were known, their secrets would have died with them.

Agriculture. Many seemingly insignificant forms of life are beginning to show important utilitarian benefits in areas such as agriculture. Some farmers are beginning to use insects and other animals that compete with or prey on certain crop pests, as well as using plants containing natural-toxin compounds that repel harmful insects. These are called "biological controls," and in many cases they are a safe, effective, and less expensive alternative to synthetic chemicals.

Thomas Jefferson once wrote that "the greatest service which can be rendered any country is to add a useful plant to its culture, especially a breadgrain." It has been estimated that there are almost 80,000 species of edible plants, of which fewer than 20 produce 90 percent of the world's food. If under-utilized species are conserved, they could help to feed growing populations. One grain native to the Great Lakes States, Indian wild rice, is superior in protein to most domesticated rice, and

its increasing commercial production is earning millions of dollars annually. Crossing it with a related but endangered species, Texas wild-rice, could perhaps result in a strain adaptable to other regions. Plant collectors are now seeking out remaining wild strains of many common crops, such as wheat and corn, for work on new hybrids more resistant to crop diseases, pests, and marginal climatic conditions.

Industry is also increasingly making use of wild plants. Two species in particular that show important potential are the jojoba and the guayule. The jojoba produces an oil with many unique properties that are suitable for a variety of industrial processes. In the past, the only comparable oil was derived from the sperm whale, but over harvesting has brought this great marine mammal to the brink of extinction. The guayule is a shrub containing high amounts of natural rubber, as well as a resin rich in other valuable substances. Both plants grow in the deserts of the southwestern United States, giving economic value to lands not suitable for other agricultural purposes, and they could provide domestic sources of products that would otherwise have to be imported.



The Texas wild-rice could someday be used to make other strains more productive.

Environmental Monitors. Many individual species are uniquely important as indicators of environmental quality. The rapid decline in bald eagles and peregrine falcons was a dramatic warning of the dangers of DDT—a strong, once widely used pesticide that accumulates in body tissues. (Its effect on these birds was to hamper fertility and egg-hatching success.) In another example, certain plants, such as the eastern white pine, are particularly good indicators of excess ozone, sulfur dioxide, and other air pollutants. If it were not for species like these, we may not have known about the effects of some contaminants until more damage was done.

Aside from the more concrete reasons for preserving endangered species, moral considerations are often mentioned. Many people believe that every creature, after adapting for thousands or even millions of years to fit a constantly changing environment, has an intrinsic right to exist. Exterminating other forms of life, they say, would not only be shortsighted, but wrong—especially since the species could never be replaced. Mankind would also be the loser; being accustomed to diversity in nature, the quality of human life would be diminished.

Ecosystems under Pressure

Hawaii is a classic example of an ecosystem unbalanced by man. In 1794, Western explorers introduced cattle and sheep to the islands, and later horses and goats, which were allowed to multiply and run wild. During the 1800's, herds of these and other livestock animals moved into the forests and, by destroying many native plants through overgrazing, degraded the habitat of birds that, in isolation over centuries, had adapted to this delicate island ecosystem. Accidentally introduced rats became serious predators of both sea birds and forest birds, and the misguided importation of the mongoose as a pest control only aggravated the

problem. Human settlement and agriculture, meanwhile, continue to claim wildlife habitat. Today, 29 of Hawaii's endemic birds and its only 2 native mammals are listed as endangered; over 800 of its native plants also are considered jeopardized or possibly extinct, largely because of overgrazing and competition with introduced flora. At least 65 species of animals and 45 plants have disappeared forever.

Not only island environments are under pressure. A portion of the San Marcos River system, in southcentral Texas, contains the only habitat for four endangered and threatened species: the fountain darter and San Marcos gambusia (fishes), the San Marcos salamander, and the Texas wild rice. These organisms have evolved over time to specific habitat elements, and disruption of the fragile aquatic ecosystem could result in their extinction. The precarious status of these and many other rare species is an indication of how little original habitat remains.

Under the Endangered Species Act of 1973, the U.S. Fish and Wildlife Service has primary responsibility to preserve not only jeopardized life, but also the natural resources on which life depends.

The condition of plant and animal species, then, is a gauge to measure how much of our world still supports a healthy environment.



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The Kauai 'akiakia was once considered common, but it may now be extinct due to overgrazing, exotic plants, and introduced predators.

More knowledge of *complete* ecosystems can help us to better understand, and protect, the requirements of all life—including the human species.

Endangered means there is still time, but *extinction* is forever.

How You Can Help

The conservation and recovery of threatened and endangered species is a tremendous and ever-increasing challenge. Through the efforts of the U.S. Fish and Wildlife Service, and its cooperative programs with some States, other governmental agencies, and private conservation groups, many jeopardized creatures now have a better chance of survival. But the assistance of everyone—including private citizens and organizations—is essential; one need not be a scientist or a government official to help.

Here is what you can do:

- Most States have programs to protect rare animals and plants. Write your State fish and game/natural resources department to find out which species are rare in your area, and what is being done to conserve them.
- Visit one of the nearly 400 National Wildlife Refuges near you, where environmental education specialists describe resident wildlife, its needs, and management. Many refuges are now developing programs to encourage volunteer work by the public, including such activities as bird counting and habitat clean-up.
- Don't buy exotic or wild animals as pets, or plants not of cultivated origin. They are often very difficult to keep, and may be protected species.
- Report violations of conservation laws to your local Federal or State authorities.
- Before travelling overseas, write the U.S. Fish and Wildlife Service, Publications Unit, Washington, D.C. 20240, for a copy of "Facts About Federal Wildlife Laws," and lists of protected species, to learn what items cannot be imported.

